Small Business Innovation Research/Small Business Tech Transfer

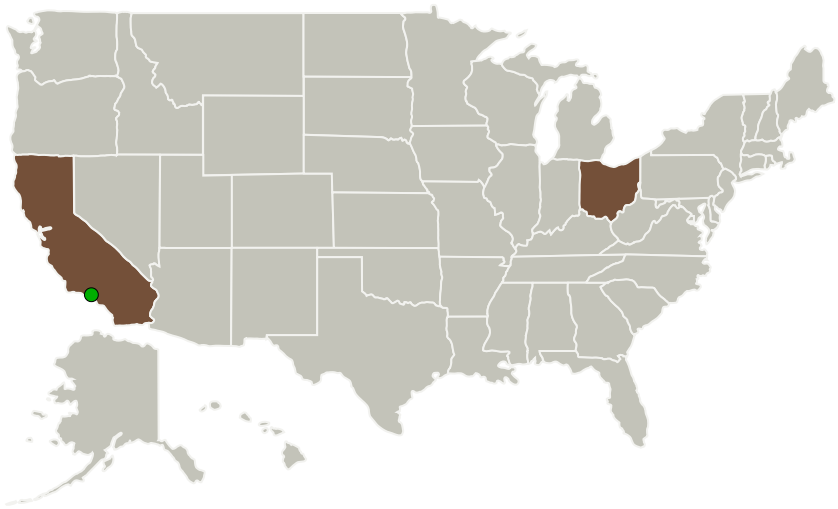
Metal-Mesh Optical Filter Technology for Mid IR, Far IR, and Submillimeter, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

This SBIR Phase I proposal describes a method of fabrication of far IR and THZ range multilayer metal-mesh filters. This type of filter consists of alternative layers of polymer material and structured thin metal films. The proposed filters are radiation hard and lightweight. The fabrication process proposed will increase the availability of such filters and expand the market while reducing the cost and delivery time. In Phase I, it is proposed to develop a process for incorporating the dielectric film in between the metal mesh and to maintain the mechanical integrity over the wide temperature range (from below 4K to 300K). In Phase II, optimized filters will be fabricated and their properties compared with design predictions. Phase III will involve product design, fabricating filter structures to meet customers' physical as well as optical needs, and marketing and sales investments.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Lake Shore Cryotronics, Inc.	Lead Organization	Industry	Westerville, Ohio
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

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Primary U.S. Work Locations	
California	Ohio

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139996)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Lake Shore Cryotronics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Philip R Swinehart

Co-Investigator:

Philip Swinehart

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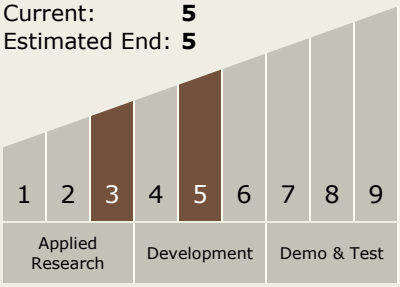
Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.3 Optical Components

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System